PROC. ENTOMOL. SOC. WASH.
89(4), 1987, pp. 660–664

ALACHUA FLORIDENSIS, A NEW GENUS AND SPECIES OF ENTEDONINAE (HYMENOPTERA: EULOPHIDAE) PARASITIC ON THE FLORIDA CARPENTER ANT, *CAMPONOTUS ABDOMINALIS* (FORMICIDAE)

MICHAEL E. SCHAUFF AND ZDENĚK BOUČEK

(MES) Systematic Entomology Laboratory, BBII, Agricultural Research Service, USDA, % U.S. National Museum of Natural History, NHB 168, Washington, D.C. 20560, USA; (ZB) CAB International Institute of Entomology, % British Museum (Natural History) Cromwell Road, London SW7 5BD, UK.

Abstract.—***Alachua floridensis,*** new genus and new species (Hymenoptera: Eulophidae), is described and illustrated. Its relationship to other entedonine genera is discussed. This species is a gregarious endoparasitoid in the pupae of the Florida carpenter ant *Camponotus abdominalis* (Hymenoptera: Formicidae), in southeastern United States.

Over the last 15 years several collections of a eulophid parasite on ant pupae have been made in various localities throughout Florida. The identity of the host species was not confirmed, although the ant was believed to be a species of *Camponotus.* Recently a series of specimens was reared from the pupae of *Camponotus abdominalis* Fabricius at Gainesville, Florida. This species is the dominant *Camponotus* in Florida and also occurs in neighboring states (Nickerson and Harris, 1985). Some pupae that were collected before the parasites emerged were preserved and the parasites are clearly visible inside. One of these host pupae was dissected and contained 21 pupae of the parasite.

Although parasitization of ants is quite common in some groups of Chalcidoidea (e.g. eucharitids), it is rare for the Eulophidae and especially for the subfamily Entedoninae. A species of ant has been recorded as a host for only one other genus in that group (*Myrmokata* (Bouček, 1972) from prepupae of an unidentified species of *Crematogaster* in Africa). Given the economic injury caused by *Camponotus* species, the presence of this parasite may be of some use in biological control. In addition, the unusual host relationship and the need for a name for this taxon for phylogenetic studies has encouraged us to describe and figure this interesting species.

Alachua Schauff and Bouček, New Genus

Type species.—*Alachua floridensis* Schauff and Bouček, New Species.

Description.—Head in dorsal view about 2× as broad as long, frontal grooves X-shaped with upper branches diverging toward top of eye (Fig. 1). Antennal formula 1:1:1:3:2 (Fig. 10), scape not reaching median ocellus. Clypeus not clearly delimited, the ventral margin slightly upturned. Eyes heavily setose, eye height ⅔ head height; dorsal and lateral margins of occiput carinate (Fig. 2); frontovertex with abundant pilosity (Fig. 1). Pronotum in dorsal view a narrow band, with transverse carina ante-

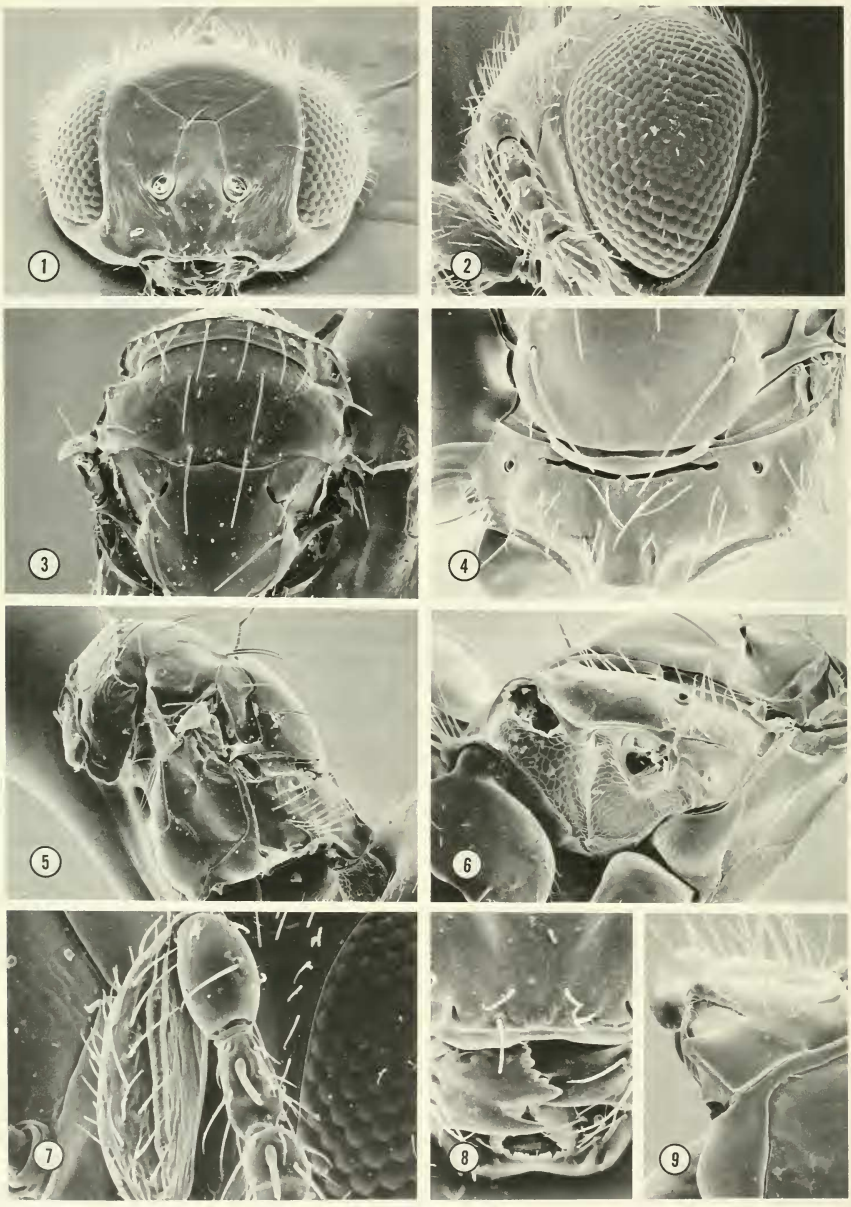
riorly, and carinate laterally. Scutum (Fig. 3) with 2 pairs of submedian setae, notauli visible in anterior half as weak lines, posteriorly visible as a very narrow, broad depression, postero-medial margin sinuate. Transscutal groove widened into a narrow fovea medially. Axillae slightly advanced forward of anterior margin of scutellum, with a single large seta and a small fovea on the postero-lateral margin. Scutellum convex, slightly broader than long, with single pair of strong setae at lateral margin, anterior margin slightly angulate medially, without medial or lateral grooves. Dorsellum a narrow band, slightly overlapping propodeum. Propodeum 3× as wide as medial length (Figs. 4, 5), gently sloping, with a linear fovea along the anterior edge that extends slightly past the edge of the metanotum laterally, with a small finger-like projection anteromedially, without a median carina, with several strong setae scattered medially, spiracle small and without obvious grooves laterally or anteriorly. Prepectus triangular, with an anterior fovea, posterior edge interrupted by anterior edge of the mesosternum (Fig. 5). Mesepisternum with mesofemoral depression. Mesepimeron divided by a straight, complete suture. Metapleural protuberance well developed and with carina along anterior side (Fig. 9). Gaster petiolate, with first tergite greatly enlarged. Forewing (Fig. 11) with marginal vein equal to submarginal; submarginal with 2 strong dorsal setae; stigmal about equal in length to postmarginal; basal and cubital vein setae present (speculum closed); marginal fringe present.

Remarks.—The relationship of this genus to other described entedonines will be discussed in detail in a paper in preparation by the senior author. However, some features possessed by this new genus do enable us to indicate tentative relationships. Several unique features clearly set *Alachua* off from other entedonines, in particular, the presence of several strong setae on the median and submedian propodeum and the heavily setose vertex. The presence of a carina extending down the side of the head behind the eyes is also very rare for this group of genera. A nearly complete lack of sculpturing on the dorsal thorax is unusual for entedonines but not unique to *Alachua*. Without additional species it is difficult to assess how widespread some of these characters may be. The indentation of the posterior edge of the prepectus by the mesosternum is shared with *Horismenus* and the presence of an anterior tooth-like projection medially on the propodeum is also shared with that genus. Species of *Horismenus* also generally have a sinuate margin posteromedially on the scutum, which is another indication of a link to *Alachua*. The X-shaped frontal forks of the head in which the scrobes do not unite before reaching the upper forks, the lack of a median scutellar groove, and the smooth non-furrowed median propodeum separate this genus from *Horismenus*.

Etymology.—The generic name is based on the locality of the type series, Alachua County, Florida. It is considered feminine.

Alachua floridensis Schauff and Bouček, New Species

Female.—Length 0.9–1.4 mm. Color as follows: head, thorax, gaster, and coxae dark brown to black. Antennae, femora, apex of last tarsomere light brown to yellow. Tibiae, first three tarsomeres and basal half of fourth yellow. Antennae (Fig. 10) with scape 3× as long as wide, inner surface convex. First funicular article slightly longer than wide (3.5:4.0), second as long as wide, third slightly wider than long. Club (including terminal spine) 2× as long as wide. Face smooth, oral fossa 2× malar space. Eye height 3× malar space. Mandibles with 2 large ventral teeth and 5–6 smaller teeth (Fig. 8). Lower margin of clypeus projecting slightly forward, frons above fork at a distinct angle from vertex. Ocelli with POL 2.5× OOL. Pronotum smooth posterior of carina, with 4–5 pairs of large setae, lightly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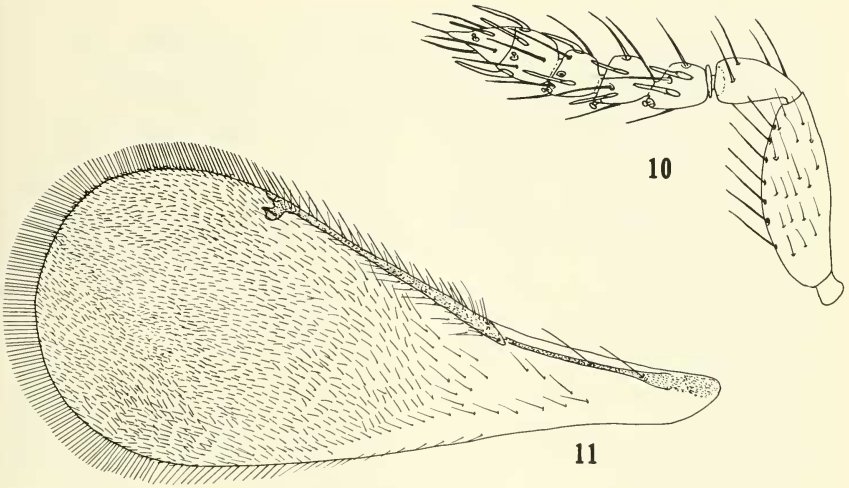

Figs. 10, 11. Female *A. floridensis*. 10, Antenna. 11, Forewing.

alutaceous on anterior slope. Propleura and prosternum alutaceous laterally becoming lightly reticulate medially. Scutum smooth, twice as broad as long. Propodeum smooth dorsally, callus with about 15 setae. Metasternum below and between hindcoxae reticulate (Fig. 6), with two carinae laterad of the petiolar foramen which converge below. Petiole slightly longer than wide, reticulate, with a laterally projecting point posteriorly. First gastral tergum in dorsal view about ½ length of gaster, laterally about ⅔ of length (nearly entire length of gaster in air dried and collapsed specimens), dorsum smooth, bare medially, laterally with numerous setae, sides smooth except for small reticulate patch in anterior ⅓, with only a few setae anteriorly. Remaining terga subequal in length, each with a row of setae and a narrow reticulate band of sculpture along posterior margin. Ovipositor sheaths short, only about ⅓ length of gaster, not extending past tip. Sterna with a single pair of setae posteromedially, last reticulate laterad of ovipositor sheaths. Forewing 2.2× as long as wide; ratio submarginal : marginal : stigmal : postmarginal 70:70:5:5, marginal fringe : wing width 12:95. Hindwing rounded apically, marginal fringe : wing width 15:40. Forefemur slightly swollen, 3.5× as long as wide, with a double row of long setae along ventral edge. Tibia equal in length to femur. Hindfemur 3× as long as wide, hindtibia with numerous long setae, each about as long as width of tibia.

Male.—Similar to the female except for the following: Length 1.1–1.3 mm; ventral edge of scape with an elongated ridge (Fig.

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Figs. 1–9. Scanning electron micrographs of *A. floridensis*. 1, Head, anterior view. 2, Head, lateral view. 3, Thorax, dorsal view. 4, Propodeum. 5, Thorax, lateral view. 6, Propodeum and metasternum. 7, Male scape. 8, Mandibles. 9, Metapleural protuberance.

7); petiole without postero-lateral projections.

Types.—Holotype ♀ on point with the following data: "Florida, Alachua Co., Gainesville, 19 June, 1986. L. Davis and L. Morel. Ex. *Camponotus abdominalis* F. Deposited in the U.S. National Museum of Natural History (USNM). Paratypes: 58 ♀ and 15 ♂ with same data as holotype, deposited in USNM, British Museum of Natural History, and Canadian National Collection.

Other specimens examined.—Several series from the following localities and hosts: FLORIDA: Key, ex. Formicidae pupa; Alachua Co., Gainesville, ex. *Camponotus floridanus* Buckley [now considered a synonym of *C. abdominalis* F., D. R. Smith, pers. comm.]; Alachua Co., 5.5 mi. W of Gainesville, T9S,R19E, section 4. From colony of *Camponotus floridanus.* Dade Co., Homestead; Noname Key, ex. ant pupae; Miami, ex. *Camponotus* pupa.

Etymology.—The species epithet refers to the state of Florida, where all the specimens of this species were collected.

Acknowledgments

We thank L. Davis (Agricultural Research Service, USDA, Gainesville) for the reared specimens and D. R. Smith (Systematic Entomology Laboratory, Agricultural Research Service, USDA) for confirming the identification of the host. We are also grateful to J. Huber, S. Heydon, S. Shaw, T. Henry, and E. E. Grissell for reviewing the manuscript and for their helpful comments.

Literature Cited

Bouček, Z. 1972. Descriptions of new eulophid parasites (Hym., Chalcidoidea) from Africa and the Canary Islands. Bull. Entomol. Res. 62: 199–205.

Nickerson, J. C. and D. L. Harris. 1985. The Florida Carpenter Ant, *Camponotus abdominalis floridanus* (Buckley) (Hymenoptera:Formicidae). Fla. Dept. Agric. Consumer Serv. Div. Plant Indus. Entomol. Circ. 269.